

Journal of

Computational Physics

VOLUME 32, 1979



Academic Press

New York and London

A Subsidiary of Harcourt Brace Jovanovich, Publishers

Copyright © 1979 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (Operations Staff, P.O. Box 765, Schenectady, New York 12301) for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1979 articles are the same as those shown for current articles.

Printed by the St. Catherine Press, Ltd., Bruges, Belgium

CONTENTS OF VOLUME 32

NUMBER 1, JULY 1979

CHRISTOPHER L. KERR AND ALAN F. BLUMBERG. An Analysis of a Local Second-Moment Conserving Quasi-Lagrangian Scheme for Solving the Advection Equation.	1
ALAIN RIGAL. Convergence and Optimization of Successive Overrelaxation for Linear Systems of Equations with Complex Eigenvalues.	10
J. W. EASTWOOD AND D. R. K. BROWNRIGG. Remarks on the Solution of Poisson's Equation for Isolated Systems.	24
GREGORY SHUBIN AND SIN-I CHENG. Gasdynamic Modeling and Computational Accuracy.	39
PIERRE HILLION. Numerical Solution of the Spinor Helmholtz Equation in Optics.	56
J. K. DUKOWICZ AND J. D. RAMSHAW. Tensor Viscosity Method for Convection in Numerical Fluid Dynamics.	71
CHA-MEI TANG. Comparison of Spectral Methods for Flows on Spheres. . .	80
DAVID W. E. BLATT AND BRUCE H. J. MCKELLAR. The Computation of Second Order Energies Using a Reference Spectrum Euler Function.	89
BRAM VAN LEER. Towards the Ultimate Conservative Difference Scheme. V. A Second-Order Sequel to Godunov's Method.	101
NOTE	
J. L. FINNEY. A Procedure for the Construction of Voronoi Polyhedra. .	137
LIST OF FORTHCOMING ARTICLES.	144

NUMBER 2, AUGUST 1979

K. BONNEROT AND P. JAMET. A Third Order Accurate Discontinuous Finite Element Method for the One-Dimensional Stefan Problem.	145
T. ERBER, P. EVERETT, AND P. W. JOHNSON. The Simulation of Random Processes on Digital Computers with Čebyšev Mixing Transformations. .	168
J. L. JOHNSON, H. E. DALHED, J. M. GREENE, R. C. GRIMM, Y. Y. HSIEH, S. C. JARDIN, J. MANICKAM, M. OKABAYASHI, R. G. STORER, A. M. M. TODD, D. E. VOS, AND K. E. WEIMER. Numerical Determination of Axisymmetric Toroidal Magnetohydrodynamic Equilibria.	212
R. MEJIA AND J. L. STEPHENSON. Numerical Solution of Multinephron Kidney Equations.	235
NOTES	
G. A. EVANS. A Numerical Differentiator.	247
AARON B. BUDGOR. The Method of Differential Areas for Computing Crystal Symmetry Independent Density of States Spectra.	254

M. PETRAVIC AND G. KUO-PETRAVIC. An ILUCG Algorithm Which Minimizes in the Euclidean Norm.	263
N. M. TEMME. An Algorithm with ALGOL 60 Program for the Computation of the Zeros of Ordinary Bessel Functions and those of their Derivatives.	270
R. J. COLE AND C. PESCATORE. Evaluation of the Integral $\int_0^\infty t^n \exp(-t^2 - x/t) dt$	280
LIST OF FORTHCOMING ARTICLES.	288

NUMBER 3, SEPTEMBER 1979

REVIEW

A. J. BAKER AND M. O. SOLIMAN. Utility of a Finite Element Solution Algorithm for Initial-Value Problems.	289
P. C. M. LAU. Curvilinear Finite Difference Method for Three-Dimensional Potential Problems.	325
F. H. MALTZ AND D. L. HITZL. Variance Reduction in Monte Carlo Computations Using Multi-Dimensional Hermite Polynomials.	345
DOUGLAS F. HAGER AND ROY G. GORDON. The Reduction of a General Complex Matrix to a Condensed Form by Bounded Single Element Transformations.	377
RICHARD C. RAFFENETTI. A Simultaneous Coordinate Relaxation Algorithm for Large, Sparse Matrix Eigenvalue Problems.	403
G. C. POMRANING AND G. M. FOGLESONG. Transport-Diffusion Interfaces in Radiative Transfer.	420
J. RANKIN AND W. R. THORSON. Continuum Wave Functions for the Two-Center, One-Electron System.	437
LIST OF FORTHCOMING ARTICLES.	447
AUTHOR INDEX FOR VOLUME 32.	448